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MEDICAL LEGISLATION.

There has been a number of bills before the present Legislature regulating the practice of medicine in the State of Missouri. One of the most important measures is a Vital Statistics Bill which has been formulated and recommended by the Bureau of Medical Legislation of the American Medical Association. This law, or practically the same law, exists now in six or seven States; under this law our State will be recognized by the National Bureau of Vital Statistics and our State will then rank among the first in this work; owing to the fact that we have no law providing for collecting Vital Statistics, it is impossible to do such work with any value. Every attempt to secure voluntary work of this kind from the physicians throughout the State has always been met with very unsatisfactory results, a few physicians always respond, giving the result of their labors, which has been unsatisfactory to them, inasmuch, as every one of them have met with almost universal disappointments from a large per cent of the physicians throughout their respective counties to report to the Local Health Officer, that he in turn might have some tangible data to turn over to the State Board of Health. There being no Statute compelling physicians to make such report, they will not do it, yet they all recognize the importance of this work. This bill will compel such report, and once in operation the report will be reliable and of inestimable value to the citizens of our State.

Office of Secretary.

The office of the Secretary of the State Board of Health is now, and has always been, migratory; wherever the Secretary is located all of the office fixtures have been transported to that place, it has been moved hither and thither from one end of the State to the other until the furniture and fixtures have been worn to a frazzle, and documents of some importance have been lost probably in these various removals. This should not be. This office should be permanently located at Jefferson City, and this permanent home should be equipped with all necessary furniture and files for preserving all the records.

Senate Bill 151 corrects this defect and is intended to give this office a permanent home in Jefferson City.

Itinerant Doctors.

There are quite a number of itinerant doctors in this State, probably the most of them are licentiates, some of them are not. Under Section 4, Housebill 137, a physician must register his license to practice medicine with the county clerk of the county, in which he lives, and upon moving to another county to make his home he must have his license recorded in this county also, but he is granted twenty

days in which to register his license. This law is defective in that it permits these traveling doctors to establish a temporary office, or place of business, in any county in the State so long as he maintains that the original county he registered in is his home, and if he is one that has no license from the State Board of Health, he can, and always does rely upon the strict construction of the law giving him twenty days in which to register his license with the county clerk, and by the time the local authorities ascertain that he is not a licensee, he is up and gone, fleecing the weak and unwary in some distant section of the State. Senate Bill No. ——— corrects this defect by compelling all physicians to register their certificate with the county clerk before beginning the practice of medicine, or establishing an office, or place of business, in another county; whether moving into that county, or as an itinerant practitioner, he must register his license before beginning the practice of medicine in any county in the State. This does not make it necessary for a physician who is licensed in his home county to re-register in another county in the State into which he may be called, unless he establishes an office, or place of business, in that county. A physician who is living near a county line may do quite as much, or even more practice in the adjoining county than in his home county, which he can continue to do without re-registering under this amended Act. This Act gives a ready means of ascertaining the real facts regarding the itinerant doctor, as he will be compelled to put his license on record in each county before beginning his work in the county.

Power to Revoke Licenses.

There are some men in the medical profession, as in all other professions, who live only to degrade the profession and will not hesitate to enter into dishonorable and unprofessional work at any time for financial gain. They would undertake and carry out all conceived and dishonorable practices if they think there is any money in the enterprise. For such manifest, dishonorable and unprofessional conduct the Board of Health has revoked many licenses.

The General Assembly of 1907 amended the Medical Practice Act giving the physician whose license had been revoked by the Board the privilege of an appeal to the Circuit Court. During this appeal the physician's license stands as though it was not revoked, he continues to practice the same as before; many of these cases are kept in the courts for a year or more, in fact, we have cases now pending the decision of the Circuit Court whose licenses have been revoked a year and a half, and still they have not reached that tribunal. This evidently is a defect in our law, which is corrected, at least in part, by Senate Bill 334, giving the physician whose license has been revoked the right of writ of certiorari by the Circuit Court in which said Board held its session when said license was revoked. Such license pending said review on certiorari shall stand revoked and so remain until the proceedings of the Board relating thereto shall be

quashed or otherwise annulled by the Circuit Court on said writ of certiorari. Under this amendment the revocation of license by the Board holds good until reviewed by the Court, and if sustained by the Court, it still holds good, but if reversed, the physician then gains his former right to practice medicine. This will, at least, secure a speedy trial, as the doctor whose license is revoked, being one of the most interested parties, will push his claim to a speedy termination.

Testimony.

In the matter of testimony the Board of Health has been very much handicapped in its work on account of having no power to subpoena or compel witnesses to appear and testify, this defect has been fully covered in Senate Bill No. —.

Should these measures be enacted into laws, the Board of Health succeeding this one will have comparatively easy sailing.

I understand that Dr. Still, the Father of Osteopathy, is trying to get an anti-vivisection bill through the present Legislature; this pretended sympathy for guinea pigs, dogs and rabbits would only serve to retard the progress of investigation, and in this pretended sympathy to lower animals we would lose much in conserving the lives of human beings, so I think our present enlightened body of Representatives will surely not make such a law.

Kansas City Examinations.

The next examination will be held at University Medical College, Kansas City, Missouri, on May 17-18-19, 1909, beginning at 9 a. m. each day, the examination of mid-wives will be on the morning of May 19, 1909, at 9 a. m.

St. Louis Examinations.

An examination will be held at St. Louis University, St. Louis, Missouri, on June 7-8-9, 1909, beginning at 9 a. m. each day, the examination of mid-wives will be on the morning of June 9, 1909, at 9 a. m.

Notice to Applicants.

All applications for examination must be made thirty days prior to date of examination, or the applicant will not be permitted to take the same.—Section 3, Housebill 137, Session Acts of 1901.

Reciprocity.

Missouri reciprocates with the following named States, either on diploma or examination:

Indiana, Michigan, Nevada, West Virginia, Maine, Minnesota, Iowa, Colorado, Kentucky, Wisconsin, Georgia, Utah, Nebraska, New Hampshire and Maryland.

Missouri reciprocates on examination only with the following named States:

Virginia, South Carolina, Wyoming, North Dakota, Texas, Louisiana and Oklahoma.

Any person asking for reciprocal favors must have been engaged in the reputable practice of medicine in the State from which he comes for at least one year just preceding the time of asking such favors, he must also be a member of some medical society and secure the endorsement of the same. Advertising doctors need not apply.

TO ABOLISH THE DRINKING CUP ON RAILROAD TRAINS.

The Kansas State Board of Health, through its secretary, Dr. S. J. Crumbine, is making a heroic effort to get rid of the common drinking cup used on passenger trains running through that State. After communicating with him on this matter I sent to the general superintendent of each road doing business in this State a letter, as we would have to have the full co-operation of the railroad authorities before the Board would take up such an enterprise, as the power of the Missouri State Board of Health is very much limited in this line of work, and could not make it effectual unless the roads would willingly co-operate. The letter reads as follows:

"Warrensburg, Mo., March 13, 1909.

Dear Sir:—I am in receipt of a letter from Dr. S. J. Crumbine, Secretary of the Kansas State Board of Health, in which he tells me he has been corresponding with the railroad companies that are doing business in Kansas regarding the abolishing of the common drinking cup, or glass, on passenger coaches in that State. There is no doubt that the promiscuous use of the drinking cup on railroads is a very prolific source of spreading contagious diseases, such as Tuberculosis, Diphtheria, La Grippe, etc. The greatest danger, probably, is from Tuberculosis, and as there is now a general crusade against the spread of this disease, if your company will co-operate with the State Board of Health in doing away with these cups, it will be taking the proper sanitary measure in educating the people how to avoid this disease and you will receive due credit for your activity in such a

needed measure. Then will your company give me an early reply to the following questions:

1st. Will your company abolish the use of the common drinking cup in Missouri if the State Board of Health issues an order to that effect?

2nd. Will you post a suitable notice in your stations in Missouri advising the public of such action and the reason therefor in order that the people may be advised of the danger of the common drinking cup and they may prepare themselves with individual cups for their journey; will say your station agents might supply the public with cheap paraffine cups at small cost.

The spread of contagious diseases through the use of the common drinking cup is no longer a theory, it is a condition that health officers will be compelled to regulate sooner or later, and the sooner we take the matter up, the better it will be for the people.

Yours truly,

J. A. B. ADCOCK, M. D., Secy."

Below are a few of the answers, showing the feeling of the railroads regarding this matter, some are willing to take up the matter at once, others want time to study the matter over, and others think it would be wise for the boards of different States to agree upon a uniform method, after which the roads will carry out the instructions; this no doubt is the best plan:

"March 22, 1909.

Dear Sir:—Your letter of the 13th, in regard to drinking cups. This company will discontinue supplying drinking cups, if so advised by your Board. We will also post such notice as you may provide, in stations, giving cause for ceasing to furnish them.

Yours truly,

VICE-PRES. & GENERAL MANAGER."

"March 20, 1909.

Dear Sir:—I understand that you are active in trying to prevent the spread of contagious diseases by doing away with the promiscuous use of the common drinking cup used on railroad trains.

The writer is in position to speak from experience that the common drinking cup in the public schools has cost him in physicians' bills already too much money. I have two children attending public schools in this city, and know from experience and from statements of others, that there is as much danger lying in the public school drinking cup as in any railroad train.

Hope you will be successful in working out a solution for this also.

Yours cordially,

GENERAL PASSENGER AGENT."

"March 30, 1909.

Dear Sir:—Referring to your favor of the 13th instant, with reference to abolishing common drinking cups on passenger trains operating in the State of Missouri.

We will very gladly co-operate with your honorable Board, but doubt the advisability of discontinuing the common drinking cup or glass. However, will be glad to post at our stations or in our passenger coaches any notices which the State Board of Health may wish to issue cautioning the traveling public of the dangers of the common drinking cup.

Yours very truly,

PRESIDENT."

"March 18, 1909.

Dear Sir:—I have referred yours of the 13th inst., to Mr. —, our Vice President and General Manager, who will doubtless write you on the matter referred to.

I am sure that Mr. — will be more than anxious to do anything he can to assist in the matter suggested by you, but the difficulty is that the Boards of Health of different states may promulgate different rules and regulations respecting public health, so that it would be almost impossible for railroad companies to comply with all of them. Last year the Boards of Health of the different states into and through which the lines of this company extend, made orders of a different character respecting placards that should be exhibited inside of cars concerning the use of cuspidors, etc., so that when a passenger coach had passed through several states on our line, the inside of the car was literally covered with different placards from the different states, no two of which correspond with each other.

There is no desire on the part of this company, I assure you, to violate any of your rules or regulations, but as a matter of justice to common carriers, I suggest that the Boards of Health of the different states should get together on this matter, as one rule would apply to all of the states as well as to any particular state, and agree upon such rules and regulations as they may deem advisable in order to protect the public health. If this is done there will be no difficulty whatever in the railroad companies observing these rules and in assisting the Boards of Health in the very important work which they have under control.

Yours very truly,

GENERAL SOLICITOR."

"March 31, 1909.

Dear Sir:—Your letter of the 13th inst., reached me here. I do not believe that the abolishment of the drinking cup on trains would be relished by our patrons or by the public, evil as its effects may be on the public health. The railroads are more than willing to accommodate the State Board of Health and to give to the public what they want, but I fear that the two things are not identical. As showing the view that is

likely to be taken by a portion of the public, I enclose a clipping from a Kansas paper which shows the standpoint of a good many people. Upon our through trains carrying Pullman cars and dining cars, the elimination of the drinking cup or glass will not be relished, and we shall be accused, among other things, of forcing people to buy various drinks in the dining cars. The misrepresentations of the press as to railroad methods and motives is so persistent that I am sure the compliance with your request would bring about a vast amount of criticism which would be as ill deserved as most of that which has already been current.

As to selling a cheap paper cup at our stations, I would not like to burden men already having plenty of work with this additional business. It would be a nuisance which so far as I can see would have no compensation.

Yours truly,

PRESIDENT."

THE CLIPPING.

Abilene Reflector, February 15: "The railroads have cut off the passes, and now are to take out the drinking cups. It is understood a little later they will take out the seats and every passenger will be required to carry his own chair. The doors and windows will be left in the cars for the present."

In view of existing conditions a representative from each State Board of Health should meet in general conference in the near future and formulate one set of general sanitary rules governing railroads, including the abolishing of the common drinking cup. I believe the railroads will adopt any reasonable measures that may be adopted looking to the general health of the traveling public.

THE MISSOURI STATE SANATORIUM.

The biennial report of the Missouri State Sanatorium for the treatment of incipient pulmonary tuberculosis announces some extraordinarily striking results. Over 93 per cent of all cases taken into the sanatorium are reported upon as having made good improvement. Over 99 per cent of all cases who on admission were judged to be suitable cases, have done well. On account of the short time that the institution has been open, the larger number of the patients are still pursuing the treatment more or less vigorously, either in the sanatorium or at home. It is not possible at this date to announce the number of absolute cures, or even the number of arrested cases. Many of the discharged cases are leading useful lives in their old routine. So far as known by the superintendent, and he endeavors to keep in touch with all discharged patients, only two patients that did well at the sanatorium have gone down again after

going home. This is, it should be noted, in spite of the fact that a considerable per cent of the patients have left the institution on their own volition, and often against the advice of the sanatorium authorities, who take the position that the thing to do is to play safe. It's better to stay at the sanatorium two months longer than absolutely necessary than it is to leave it ten days too early.

The sanatorium is now much overcrowded—70 people occupy the spaces planned for 48. Nearly every day people visit or write the sanatorium in the interest of some relative or friend who has fallen a victim to "consumption," and who wishes to be admitted as a patient to the sanatorium. Not half the people seeking admission can be received.

It's the duty of the State to make room. The Sanatorium Board of Managers are asking—yes, pleading, with—the Legislature to give more of the poor suffering tuberculosis patients a chance to get well, by providing for more buildings at the Mount Vernon Institution. Less than \$400,000 is being asked for. This may seem on first thought to be too large, owing to the present depleted condition of the State treasury. But think! Suppose every man in this great bountifully God-blessed and wealthy State of Missouri who is the possessor of \$1,000 or more was assessed in addition to his present tax, one dollar per thousand, much more than \$400,000 would be raised, and no one would miss or regret the extra tax, and those who were unfortunate enough to have dear ones in the grasp of "The Great White Plague" would feel, and no doubt in many cases would voice, the deepest sentiment of thanks. (This is not suggested as a method of raising the state revenue—it is a mere illustration.)

Many of the readers of this will say, "We are too poor, there's no use." "But," I exclaim, "my dear uninfluenceable Missourian, suppose it was your mother, or your wife, or your daughter, that was denied admission because the sanatorium was too small—would it seem to you that a few thousand dollars was of much consequence in comparison with the life of your dear one?"

Here is another viewpoint. The sanatorium is classed by the statutes as an eleemosynary institution. I wish to support the premise that it would correctly be classed as an economic or an educational institution. Every patient to die of tuberculosis costs his family for every day of his illness one dollar or more for care, one dollar, his own lost wages, and one dollar for medicine, nurse and physician. These figures err in being much too small. Nearly every tuberculosis patient is incapacitated from his work for about one year previous to his death. Figuring from the above data we find that each patient costs his family in the neighborhood of \$1,000. Had the patient lived out his existence he would have had perhaps thirty productive years. Many tuberculosis patients are afflicted in the prime of life. In thirty healthy useful years a man should earn on a low estimate \$10,000. Missouri is losing yearly by this course of figuring from ten to twenty millions of dollars, from the dread monster tuberculosis.

If some foe would attack our stock—cattle, mules, hogs, chickens,

horses—and carry them off in even half the numbers that tuberculosis claims from our citizens, every loyal Missourian would be demanding some stringent action on the part of our law-making bodies. Is there any reason why Missouri will not appraise her people as well as her stock at the proper value?

Other states and countries are trying to save the lives of their people. Germany, England, Sweden, Holland, and even many of the insignificant countries of Europe, are spending thousands and thousands of dollars every year to stamp out "The Great White Plague." They are succeeding, too. The warfare in Germany and England has been under way the past decade, and the death rate now in these places is less than half what it was ten years ago. Think! Is this worth while?

New York, Massachusetts, Maine, Pennsylvania, and many other states are spending hundreds of thousands of dollars every year in the fight against consumption.

And the results are that now in the larger cities where the fight has been waged the longest and the hardest, the death rate from consumption has been decreased already in these few years nearly 50 per cent. Is this worth while? Should Missouri care to do any less? Does Missouri need to take a back seat? Ought we not take pride in setting a pace for Kansas, Arkansas, Texas, Nebraska, etc.?

When you, reader, have read this far, go back and read again the introductory paragraph.

The motto of the sanatorium is, "One more patient taken, one more life saved." The State has invested at the present time in the neighborhood of \$125,000 in the buildings and grounds of the sanatorium. At least 125 lives have been saved directly by the sanatorium, and perhaps an equal number have been saved indirectly, among those who could not come to the sanatorium, but had heard of "the cure" from some one who was fortunate enough to be at the sanatorium. Is 125 lives a low rate of interest on \$125,000?

Whereas, one of every eight deaths in Missouri is due to tuberculosis, and whereas, it is a rare family that has not had the saddest of sad experiences on account of tuberculosis, and whereas, treatment for tuberculosis under proper conditions and surroundings is thoroughly efficacious and satisfactory, and whereas, the sanatorium is both an economic and educational institution, is not \$400,000 a very paltry sum for the State of Missouri to devote to so worthy a cause?

The education of a child may be postponed a year and it makes little difference, as the child can begin just as well the year later. The poor afflicted consumptives go on down to the grave while we are waiting to provide a place for them. Think! Act! Legislator, you have a duty! Citizens, urge them to do it. Let all those who have had experience with tuberculosis make an urgent appeal to the legislators.—Editorial from *The Medical Fortnightly*, St. Louis, Mo., March 10, 1909.

REPORT OF THE BACTERIOLOGIST.

April 1, 1909.

The following examinations have been made during the past three months:

Sputum containing tubercle bacilli.....	35
Sputum free from tubercle bacilli.....	94
For diphtheria, showing the presence of the Klebs-Loeffler bacillus.	4
For diphtheria, free from the Klebs-Loeffler bacillus.....	8
Blood, Widal reaction positive.....	12
Blood, Widal reaction negative.....	13
Water.	1

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BOVINE AND HUMAN TUBERCULOSIS.

(Abstract from an article by John R. Mohler, V. M. D., in Bulletin No. 41, Hyg. Lab., U. S. Public Health and Marine Hospital Service, Washington, page 490.)

Probably the most important disease of cows from the standpoint of public health is tuberculosis, and it is also the most prevalent. When Koch first discovered the cause of the disease and combined the announcement of his discovery with the statement that he considered the affection identical in both man and cattle, it was accepted by scientists as well as by the general public. His subsequent announcement in 1901, to the effect that this disease was different in man and cattle, and that there was no practical need for preventing the use of the products of tuberculous animals for human food, was the cause of much rejoicing among those who were only too glad to grasp at any idea which would tend to separate the disease in man and in cattle, forgetting that bovine tuberculosis is also a dangerous disease to other cattle in the herd and should be stamped out for this reason, aside from the danger to which man is exposed.

As a result of this radical statement of Koch's, which was based upon incomplete and unsatisfactory evidence, several government commissions were appointed in different countries, and many public and private scientists immediately took it upon themselves to solve the question raised by that investigator. The results of these experiments were

so strikingly similar that it is now the generally accepted opinion among scientists that people, especially children, may become infected with tuberculosis from cattle. It is not known to what extent such infection occurs, nor is it possible to obtain any definite percentage by the method formerly adopted of looking for the primary lesions in the intestinal canal, although much statistical evidence is recorded showing that even by these figures primary intestinal tuberculosis of children has been observed in as high as 45.5 per cent of the tuberculous cases examined. Evidence which must be considered conclusive has been obtained by the Bureau of Animal Industry, as well as by Ravenel and a number of French investigators, showing that tuberculous infection may take place through the intestinal tract without leaving any lesion in the abdominal cavity, the first alteration being found in the lungs or the thoracic cavity. Therefore, the presence of pulmonary tuberculosis without intestinal lesions is no indication that the disease was not transmitted by the food, and the statistics above referred to are thus shown to be below the true percentage of cases of tuberculosis of intestinal origin.

These figures, however, do not give any satisfactory idea as to whether the bacilli entering the intestines originated from human or bovine sources. Owing to this fact, it follows that the only way of determining the infection of people by bacilli of the bovine type will be to study the lesions in the body of as many cases of human tuberculosis as is possible. Already we have sufficient data to give us some idea of the extent of tuberculosis of the bovine type in children without considering the numerous cases of direct transmission recorded by many physicians, especially of instances of butchers and others receiving accidental infections of the skin with the bovine organism. Moreover, according to Von Behring, the question of infection in man usually goes back to childhood, as he believes that many of the cases of pulmonary tuberculosis in adults are of intestinal origin, infection having occurred primarily through the intestinal tract by drinking tuberculous milk during infancy and having remained latent until adult life.

The finding of the bovine type of tubercle bacillus in human lesions is the most direct and positive proof that tuberculosis of cattle is responsible for a certain amount of tuberculosis in the human family. Numerous experiments with this object in view have already proven this fact. Thus the German Commission on Tuberculosis examined 56 different cultures of tubercle bacilli of human origin and found 6 which were more virulent than is usual for human tubercle bacilli, causing marked lesions of tuberculosis in cattle inoculated with them, and making over

10 per cent of the cases tested that were affected with a form of tuberculosis which, by Koch's own method, must be classified as of bovine origin. The bacilli, with the exception of a single group, were all derived from the bodies of children under seven years of age, being taken from tuberculous ulcers of the intestines, the mesenteric glands, or from the lungs.

In a similar series of tests conducted by the British Royal Commission on Tuberculosis, 60 cases of the disease in the human were tested, with the result that 14 cases were claimed by this commission to have been infected from bovine sources. Ravenel reports that of 5 cases of tuberculosis in children, two received their infection from cattle. Theobald Smith has also reported on one culture of the bovine tubercle bacillus obtained from the mesenteric glands of a child out of five cases examined, and according to a recent paper by Goodale, Smith has recently been at work on seven other cultures from different children, four of which conformed to his idea of tubercle bacilli emanating from cattle. Of four cases of generalized tuberculosis in children examined in the Biochemic Division of the Bureau of Animal Industry, two were found to be affected with very virulent organisms, which warranted the conclusion that such children had been infected from a bovine source. The Pathological Division of the same bureau has likewise, out of the nine cases of infantile tuberculosis examined, obtained two cultures of tubercle bacilli that could not be differentiated from bovine cultures. In Europe so many similar instances of bovine tubercle bacilli having been recovered from human tissues are on record that it appears entirely proven that man is susceptible to tuberculosis caused by animal infections, and while the proportion of such cases can not be decided with even approximate accuracy, it is nevertheless incumbent upon us to recommend such measures as will guard against these sources of danger when enforced.

The two principal sources of infection from cattle, and the only ones necessary to be considered, are the meat and milk of tuberculous animals. The fact that most of the cases of bovine tuberculosis above enumerated which occurred in the human were cases of infantile tuberculosis points with grave suspicion to the milk rather than to the meat supply. This naturally leads to the question of how and under what condition does the milk become dangerous, since Bang, Rabinowitsch and Kempner, Ernst, Ravenel, Smith, MacWeeney, Moussu, Gehrmann and Evans, Mohler, and many others have definitely determined the infectiveness of milk from tuberculous cows.

That milk coming from a tuberculous udder is capable of transmitting the infectious principle is conceded by all who have given the subject any consideration. It has been equally established that in advanced generalized tuberculosis the udder may secrete tubercle bacilli without showing any indication of being affected. Careful experiments performed by trained and eminently responsible investigators have also demonstrated beyond reasonable doubt that tubercle bacilli at certain times may be present in the milk of cows affected by tuberculosis to a degree that can be detected only by the tuberculin test, so that in a herd of cows in the various stages of tuberculosis it is to be expected that some of them will secrete tuberculous milk, which, when mixed with other cows' milk, makes the entire product dangerous.

In this connection it may be stated that the market milk of the District of Columbia has recently been examined by the writer for the presence of tubercle bacilli by the intra-abdominal inoculation of guinea pigs, and in two samples, or 2.7 per cent of the 73 specimens tested, virulent tubercle bacilli were recovered. The ease with which tubercle bacilli may be eliminated by the udder was strikingly illustrated by an experiment conducted by the Royal British Commission, in which a cow injected with human tubercle bacilli under the skin of the shoulder began excreting tubercle bacilli from the mammary gland seven days later, and continued to do so until its death from generalized tuberculosis, thirty days after the inoculation. It has been shown by Gaffky and Eber in Germany, and Schroeder in this country, that even when the tubercle bacilli are not being excreted by the udder, the dust and manure of the stable where the diseased animals are kept, are in many cases contaminated with tubercle bacilli. This contaminated material may readily infect the milk during the process of milking, even though the milk comes from a healthy cow. The importance of this method of infecting milk cannot be too greatly emphasized when it is known that cattle in prime condition without any udder lesions and with but slight alterations in the lungs, frequently raise tuberculous mucus into the pharynx while coughing, then swallow this material, and thus contaminate the feces. In a recent examination at the Bureau of Animal Industry Experiment Station of the manure passed by twelve cows just purchased from dairy farms in this city and affected with tuberculosis to an extent only demonstrable by the tuberculin test, tubercle bacilli were found in over 41 per cent of the cases, both by microscopic examination and animal inoculations. The danger from this method of infecting milk is impressed upon us as consumers when we realize that on an average probably 25

per cent of all the cows which supply milk to the District are tuberculous, judging from the results of recent tuberculin tests. Thus far these tests have all been voluntary on the part of the dairymen, but it is pleasing to note the large number who have had their herds cleaned of tuberculosis and the premises disinfected. Our records on December 1st, 1907, show that during the past six or seven months the Bureau has supervised the testing of 1,538 cattle in 104 herds supplying milk to Washington, with the result that 260, or 16.9 per cent, were found tuberculous. Many other tests have been made by local veterinaries, of which we have no record. The latter per cent is scarcely a fair estimate of the extent of tuberculosis in the dairy herds of this vicinity, since our tests include many herds which have either been cleaned previously by private tests or which have such a healthy appearance as to remove all suspicions of tuberculosis on a physical examination.

Vital statistics show that 14 out of every 100 people that die succumb to tuberculosis, while of the remaining 86, more than one-half show lesions of tuberculosis on post-mortem, although dying from some other cause. The statement of Von Behring, above mentioned, is practically pertinent in regard to the relation of human tuberculosis to the milk supply, especially in connection with the results of those investigators who have studied market milk and found from 5.2 to 55 per cent of the samples examined to contain tubercle bacilli. Le Blanc, Ripper, Jemma, and De Michele consider the milk of tuberculous cows dangerous even when the bacilli are not present, on account of the toxin that it contains. Michelazzi has injected such milk into tuberculous animals and obtained a reaction.

To eliminate all tuberculous cattle from the herd, or to pasteurize all milk coming from untested cattle, should, therefore, be the object of all producers of milk, and sanitariums will be remiss in their whole duty should they neglect to guard against the products of tuberculous animals in their attempts to eradicate tuberculosis from man.

HOUSE TO HOUSE WAR ON MOSQUITO.

Washington, June 22.—A national campaign against the house fly and mosquito has been planned and is about to be begun by the government bureau of insects. It will cover the entire country, and in its prosecution measures are to be urged by which not only communities, but

whole states, will be enabled to rid themselves of these deadly enemies of mankind.

In order to attain this end it is necessary merely to adopt a few simple and well-understood methods, the application of which may be intrusted to local boards of health. Where the mosquito is concerned, however, it is deemed advisable that there should be a general control by the state, because of the fact that certain species of these tuneless marauders are migratory and liable to appear suddenly in multitudinous swarms in places far from their breeding areas, giving profound discouragement to local efforts toward extermination.

The house fly is strictly local; it never goes far from the place where it was hatched. Furthermore, practically all house flies are bred in stables. Hence, it is a simple matter to exterminate them absolutely.

There is no doubt that house flies and mosquitoes transmit germs and that some of them find their way into food and drink, causing sickness. The extent of infection from this source cannot be exactly known, but the safest way is to keep them out by the use of screen doors and window screens.

BULLETIN

OF THE

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VITAL STATISTICS.

The Forty-fifth General Assembly of the State of Missouri enacted a vital statistics law, which was duly signed by the Governor and will take effect August 17, 1909, and will become operative as soon thereafter as the Board of Health may deem practical. It will require a great deal of careful labor to put this law in smooth working order, every detail must be established by the board and made known to all registrars, physicians, midwives and undertakers throughout the state.

The first work of dividing the state into registration districts should be carefully done, as each incorporated town constitutes a registration district, and the county outside of such incorporated town is to be districted to suit the convenience of the citizens in a practical way. Then the selection of a local registrar for each district who will accept this work and discharge his duty, then the printing matter will have to be gotten out and distributed: Copies of the law, record books, blank birth and death certificates, instructions to the local registrar, etc. All this will take time and some patience, but the system should be perfected before the work of collecting statistics begins, so our work will be accepted by the National Bureau of Vital Statistics. Dr. Cressy L. Wilbur, statistician of census and vital statistics, advises that we take every care in starting right, and thinks January, 1910, will probably be as soon as the preparatory work can be acceptably done.

The act is published in full in this Bulletin; also two amendments of the Medical Practice Act.

Senate Bill No. 149, 45th General Assembly.

An act to provide for the immediate registration of all births and deaths throughout the state of Missouri by means of certificates of births and deaths, and burial or removal permits; requiring prompt returns to the Central Bureau of Vital Statistics at the capital of the state, as required to be established by the State Board of Health, and to insure the thorough organization and efficiency of the registration of vital statistics throughout the state and providing certain penalties.

Be it enacted by the General Assembly of the State of Missouri, as follows:

Section 1. That it shall be the duty of the State Board of Health to have charge of the state system of registration of births and deaths; to prepare the necessary methods, forms and blanks for obtaining and preserving such records and to insure the faithful registration of the same in the registration districts and in the Central Bureau of Vital Statistics at the capital of the state. The said board shall be charged with the uniform and thorough enforcement of the law throughout the state, and shall from time to time promulgate any additional forms and amendments that may be necessary for this purpose.

Sec. 2. That the secretary of the State Board of Health shall have supervision over the Central Bureau of Vital Statistics, which is hereby authorized to be established by said board, and shall act as state registrar of vital statistics. As secretary he shall receive an annual salary at the rate of \$2,400.00, payable monthly. The State Board of Health shall provide for such clerical and other assistance as may be necessary for the purpose of this act, who shall serve during the pleasure of the board, and may fix the compensation of persons thus employed within the amount appropriated therefor by the legislature. Suitable apartments shall be provided by the custodian of the capitol for the Bureau of Vital Statistics and the State Board of Health in the state capitol at Jefferson City, which shall be properly equipped with fireproof vault and filing cases for the permanent and safe preservation of all official records made and returned under this act.

Sec. 3. That for the purposes of this act the state shall be divided into registration districts as follows: Each city and incorporated town shall constitute a primary registration district; and for that portion of each county outside of the cities and incorporated towns therein, the State Board of Health shall define and designate the boundaries of a sufficient number of rural registration districts, which it may change from time to time as may be necessary to insure the convenience and completeness of registration.

Sec. 4. That within ninety days after the taking effect of this act, or as soon thereafter as possible, the State Board of Health shall appoint a local registrar of vital statistics for each registration district in the state. The term of office of local registrars, appointed by said

board, shall be for four years, beginning with the first day of January of the year in which this act shall take effect, and their successors shall be appointed at least ten days before the expiration of their terms of office; provided, that in cities where health officers or other officials are conducting effective registration of births and deaths under local ordinances at the time of the taking effect of this act, such officers shall be continued as registrars in and for such cities, and shall be subject to the rules and regulations of the state registrar, and to all of the provisions of this act. Any local registrar appointed by said board who fails or neglects to discharge efficiently the duties of his office as laid down in this act, or who fails to make prompt and complete returns of births and deaths, as required thereby, shall be forthwith removed from his office by the State Board of Health, and his successor appointed, in addition to any other penalties that may be imposed, under other sections of this act, for failure or neglect to perform his duty. Each local registrar appointed by said board shall, immediately upon his acceptance of appointment as such, appoint a deputy, whose duty it shall be to act in his stead in case of absence, illness or disability, and who shall accept such an appointment in writing, and who shall be subject to all rules and regulations governing the action of local registrars. And when it may appear necessary for the convenience of the people in any registration district, the local registrar is hereby authorized, with the approval of the state registrar, to appoint one or more suitable persons to act as sub-registrars, who shall be authorized to receive certificates and to issue burial or removal permits in and for such portions of the registration district as may be designated; and each sub-registrar shall note, over his signature, the date on which each certificate was filed, and shall forward all certificates to the registrar of the district within ten days, and in all cases before the third day of the following month; provided, that all sub-registrars shall be subject to the supervision and control of the state registrar, and may be by him removed for neglect or failure to perform their duties in accordance with the provisions of this act or the rules and regulations of the state registrar, and they shall be liable to the same penalties for neglect of duties as the local registrar.

Sec. 5. That the body of any person whose death occurs in the state shall not be interred, deposited in a vault or tomb, cremated or otherwise disposed of, or removed from or into any registration district until a permit for burial, removal or other disposition shall have been properly issued by the local registrar of the registration district in which the death occurs. And no such burial or removal permit shall be issued by any registrar until a complete and satisfactory certificate of death has been filed with him as hereinafter provided; Provided, that when a dead body is transported by common carrier into a registration district in Missouri for burial, then the transit and removal permit, issued in accordance with the law and health regulations of the place where the death occurred, when said death occurs outside

of the state of Missouri, shall be accepted by the local registrar of the district, into which the body has been transported for burial or other disposition, as a basis upon which he shall issue a local burial permit, in the same way as if the death occurred in his district, but shall plainly enter upon the face of the burial permit the fact that it was a body shipped in for interment, and give the actual place of death; but a burial permit shall not be required from the local registrar of the district in which interment is made, when a body is removed from one district in Missouri to another in the state, for purpose of burial or other disposition, either by common carrier, hearse, or other conveyance; and no local registrar shall, as such, require from undertakers or persons acting as undertakers any fee for the privilege of burying dead bodies.

Sec. 6. That stillborn children or those dead at birth shall be registered as births and also as deaths, and a certificate of both the birth and death shall be filed with the local registrar, in the usual form and manner, the certificate of birth to contain in place of the name of the child, the word "stillbirth." The medical certificate of the cause of death shall be signed by the attending physician, if any, and shall state the cause of death as "stillborn," with the cause of the stillbirth, if known, whether a premature birth, and, if born prematurely, the period of uterine gestation, in months, if known; and a burial or removal permit in the usual form shall be required. Midwives shall not sign certificates of death for stillborn children; but such cases, and stillbirths occurring without attendance of either physician or midwife, shall be treated as deaths without medical attendance, as provided for in section 8 of this act.

Sec. 7. That the certificate of death shall contain the following items:

(1) Place of death, including state, county, township, city, the ward, street and house number. If in a hospital or other institution, the name of the same to be given instead of the street and house number. If in an industrial camp, the name of the camp to be given.

(2) Full name of decedent. If an unnamed child, the surname preceded by "unnamed."

(3) Sex.

(4) Color or race—as white, black (negro or negro descent), Indian, Chinese, Japanese, or other.

(5) Conjugal condition—as single, married, widowed or divorced.

(6) Date of birth, including the year, month, and day.

(7) Age, in years, months, and days.

(8) Place of birth; city or town, state or foreign country.

(9) Name of father.

(10) Birthplace of father; state or foreign country.

(11) Maiden name of mother.

(12) Birthplace of mother; city or town, state or foreign country.

(13) Occupation. The occupation to be reported of any person who had any remunerative employment; women as well as men.

(14) Signature and address of informant.

(15) Date of death, including the year, month, and day.

(16) Statement of medical attendant of decedent, fact and time of death, including the time last seen alive.

(17) Cause of death, including the primary and contributory causes or complications, if any, and duration of each.

(18) Signature and address of physician or official making the medical certificate.

(19) Length of residence at place of death and in state. Special information concerning deaths in hospitals and institutions, and of persons dying away from home, including the former or usual residence, and place where the disease was contracted.

(20) Place of burial or removal.

(21) Date of burial or removal.

(22) Signature and address of undertaker.

(23) Official signature of registrar, with the date when certificate was filed, and registered number.

The personal and statistical particulars (items 1 to 13) shall be authenticated by the signature of the informant, who may be any competent person acquainted with the facts.

The statement of facts relating to the disposition of the body shall be signed by the undertaker or person acting as such.

The medical certificate shall be made and signed by the physician, if any, last in attendance on the deceased, who shall specify the time in attendance, the time he last saw the deceased alive and the hour of the day at which the death occurred. And he shall further state the cause of death, so as to show the course of disease or sequence of causes resulting in the death, giving the primary cause, and also the contributory causes, if any, and the duration of each. Indefinite and unsatisfactory terms, indicating only symptoms of disease or conditions resulting from disease, will not be held sufficient for issuing a burial or removal permit; and any certificate containing only such terms as defined by the state registrar shall be returned to the physician for correction and definition. Causes of death, which may be the result of either disease or violence, shall be carefully defined; and, if from violence, its nature shall be stated, and whether (probably) accidental, suicidal, or homicidal. And in case of deaths in hospitals, institutions, or away from home, the physician shall furnish the information required under this head (item 20), and shall state where, in his opinion, the disease was contracted.

Sec. 8. That in case of any death occurring without medical attendance, it shall be the duty of the undertaker to notify the registrar of such death, and when so notified the registrar shall inform the local health officer and refer the case to him for immediate investigation and certification, prior to issuing the permit; provided, that

when the local health officer is not a qualified physician, or when there is no such official, and in such cases only, the registrar is authorized to make the certificate and return from the statement of relatives or other persons having adequate knowledge of the facts. Provided, further, that if the circumstances of the case render it probable that the death was caused by unlawful or suspicious means, the registrar shall then refer the case to the coroner for his investigation and certification. And any coroner whose duty it is to hold an inquest on the body of any deceased person, and to make the certificate of death required for a burial permit, shall state in his certificate the name of the disease causing death, or the means of death; causes or violence, and whether (probably) accidental, suicidal, or homicidal, as determined by the inquest; and shall, in either case, furnish such information as may be required by the state registrar properly to classify the death.

Sec. 9. That the undertaker, or person acting as undertaker, shall be responsible for obtaining and filing the certificate of death with the local registrar of the district in which the death occurred, and securing a burial or removal permit, prior to any disposition of the body. He shall obtain the personal and statistical particulars required from the person best qualified to supply them, over the signature and address of his informant. He shall then present the certificate to the attending physician, if any, or to the health officer or coroner, as directed by the local registrar, for the medical certificate of the cause of death and other particulars necessary to complete the record, as specified in section 8. And he shall then state the facts required relative to the date and place of burial, over his signature and with his address, and present the completed certificate to the local registrar, who will issue a permit for burial, removal or other disposition of the body. The undertaker shall deliver the burial permit to the sexton, or person in charge of the place of burial, before interring or otherwise disposing of the body; or shall attach the transit permit to the box containing the corpse, when shipped by any transportation company; said permit to accompany the corpse to its destination, where, if within the state of Missouri, it shall be delivered to the sexton or other person in charge of the place of burial.

Sec. 10. That if the interment, or other disposition of the body is to be made within the state, the wording of the burial permit may be limited to a statement by the registrar, and over his signature that a satisfactory certificate of death having been filed with him, as required by law, permission is granted to inter, remove, or otherwise dispose of the deceased, stating the name, age, sex, cause of death, and other necessary details upon the form prescribed by the state registrar.

Sec. 11. That no sexton or person in charge of any premises in which interments are made shall inter or permit the interment or other disposition of any body unless it is accompanied by a burial,

removal or transit permit, as herein provided. And each sexton, or person in charge of any burial ground, shall indorse upon the permit the date of interment, over his signature, and shall return all permits so indorsed to the local registrar of his district within ten days from the date of interment, or within the time fixed by the local board of health. He shall also keep a record of all interments made in the premises under his charge, stating the name of the deceased person, place of death, date of burial, and name and address of the undertaker; which record shall at all times be open to public inspection.

Sec. 12. That all births that occur in the state shall be immediately registered in the districts in which they occur, as hereinafter provided.

Sec. 13. That it shall be the duty of the attending physician or midwife to file a certificate of birth, properly and completely filled out, giving all the particulars required by this act, with the local registrar of the district in which the birth occurred, within ten days after the date of the birth. And if there be no attending physician or midwife, then it shall be the duty of the father or mother of the child, householder or owner of the premises, manager or superintendent of public or private institutions in which the birth occurred, to notify the local registrar, within ten days after the birth, of the fact of such birth having occurred. It shall then, in such case, be the duty of the local registrar to secure the necessary information and signature to make a proper certificate of birth; provided, that in cities the certificate of birth shall be filed at a less interval than ten days after birth, if so required by municipal ordinance (or regulation) now in force or that may hereafter be enacted.

Sec. 14. That the certificate of birth shall contain the following items:

(1) Place of birth, including state, county, township or town, village or city. If in a city, the ward, street, and house number; if in a hospital or other institution, the name of the same to be given, instead of the street and house number.

(2) Full name of child. If the child dies without a name, before the certificate is filed, enter the words "died unnamed." If the living child has not yet been named at the date of filing certificate of birth, the space for "full name of child" is to be left blank, to be filled out subsequently by a supplemental report, as hereinafter provided.

(3) Sex of child.

(4) Whether a twin, triplet, or other plural birth. A separate certificate shall be required for each child in case of plural birth, giving number of child in order of birth.

(5) Whether legitimate or illegitimate.

(6) Full name of father.

(7) Residence of father.

(8) Color or race of father.

(9) Birthplace of father; city or town, state or foreign country.

- (10) Age of father at last birthday, in years.
- (11) Occupation of father.
- (12) Maiden name of mother.
- (13) Residence of mother.
- (14) Color or race of mother.
- (15) Birthplace of mother; city or town, state or foreign country.
- (16) Age of mother at last birthday, in years.
- (17) Occupation of mother.
- (18) Number of child of this mother, and number of children of this mother now living.
- (19) Born at full term?
- (20) The certificate of attending physician or midwife as to attendance at birth, including statement of year, month, day and hour of birth, and whether the child was alive or dead at birth. This certificate shall be signed by the attending physician or midwife, with date of signature and address; if there is no physician or midwife in attendance, then the father or mother of the child, householder or owner of the premises, or manager or superintendent of public or private institution, or other competent person, whose duty it shall be to notify the local registrar of such birth, as required by section 13 of this act.
- (21) Exact date of filing in office of local registrar, attested by his official signature, and registered number of birth, as hereinafter provided.

All certificates, either of birth or death, shall be written legibly, in unfading black ink, and no certificate shall be held to be complete and correct that does not supply all of the items of information called for herein, or satisfactorily account for their omission.

Sec. 15. That when any certificate of birth of a living child is presented without the statement of the given name, then the local registrar shall make out and deliver to the parent of the child a special blank for the supplemental report of the given name of the child, which shall be filled out as directed, and returned to the local registrar as soon as the child shall have been named.

Sec. 16. That every physician, midwife and undertaker shall, without delay, register his or her name, address and occupation with the local registrar of the district in which he or she resides, or may hereafter establish a residence; and shall thereupon be supplied by the local registrar with a copy of this act, together with such rules and regulations as may be prepared by the state registrar relative to its enforcement. Within thirty days after the close of each calendar year each local registrar shall make a return to the state registrar of all physicians, midwives or undertakers who have been registered in his district during the whole or any part of the preceding calendar year; provided, that no fee or other compensation shall be charged by local registrars to physicians, midwives or undertakers for regis-

tering their names under this section or making returns thereof to the state registrar.

Sec. 17. That all superintendents or managers, or other persons in charge of hospitals, almshouses, lying-in or other institutions, public or private, to which persons resort for treatment of disease, confinement, or are admitted by process of law, are hereby required to make a record of all the personal and statistical particulars relative to the inmates in their institutions at the date of approval of this act, that are required in the form of the certificate provided for by this act, as directed by the state registrar; and thereafter such record shall be, by them, made for all future inmates at the time of their admission. And in case of persons admitted or committed for medical treatment of disease, the physician in charge shall specify for entry in the record, the nature of the disease, and where, in his opinion, it was contracted. The personal particulars and information required by this section shall be obtained from the individual himself if it is practicable to do so; and when they cannot be so obtained, they shall be secured in as complete a manner as possible from relatives, friends, or other persons acquainted with the facts.

Sec. 18. That the state registrar shall prepare, print and supply to all registrars all blanks and forms used in registering, recording and preserving the returns, or in otherwise carrying out the purposes of this act; and shall prepare and issue such detailed instructions as may be required to secure the uniform observance of its provisions and the maintenance of a perfect system of registration. And no other blanks shall be used than those supplied by the state registrar. He shall carefully examine the certificates received monthly from the local registrars, and if any such are incomplete or unsatisfactory he shall require such further information to be furnished as may be necessary to make the record complete and satisfactory. And all physicians, midwives, informants or undertakers connected with any case, and all other persons having knowledge of the facts, are hereby required to furnish such information as they may possess regarding any birth or death upon demand of the state registrar, in person, by mail, or through the local registrar. He shall further arrange, bind and permanently preserve the certificates in a systematic manner, and shall prepare and maintain a comprehensive and continuous card index of all births and deaths registered; the cards to show the name of child or deceased, place and date of birth or death, number of certificate, and the volume in which it is contained. He shall inform all registrars what diseases are to be considered as infectious, contagious, or communicable and dangerous to the public health, as decided by the state board of health, in order that when deaths occur from such diseases proper precautions may be taken to prevent the spreading of dangerous diseases.

Sec. 19. That it shall be the duty of the local registrars to supply blank forms of certificates to such persons as require them. Each

local registrar shall carefully examine each certificate of birth or death when presented for record, to see that it has been made out in accordance with the provisions of this act and the instructions of the state registrar; and if any certificate of death is incomplete or unsatisfactory, it shall be his duty to call attention to the defects in the return, and to withhold issuing the burial or removal permit until they are corrected. If the certificate of death is properly executed and complete, he shall then issue a burial or removal permit to the undertaker; Provided, that in case the death occurred from some disease that is held by the state board of health to be infectious, contagious, or communicable and dangerous to the public health, no permit for the removal or other disposition of the body shall be granted by the registrar, except under such conditions as may be prescribed by the state board of health. If a certificate of birth is incomplete, he shall immediately notify the informant, and require him to supply the missing items if they can be obtained. He shall then number consecutively the certificates of birth and death, in two separate series, beginning with the "number one" for the first birth and the first death in each calendar year, and sign his name as registrar in attest of the date of filing in his office. He shall also make a complete and accurate copy of each birth and death certificate registered by him in a record book of approved form, to be kept and permanently preserved in his office as the local record of such birth and death, in such manner as directed by the state registrar. And he shall, on the tenth day of each month, transmit to the state registrar all original certificates registered by him during the preceding month. And if no births or deaths occurred in any month, he shall on the tenth day of the following month, report that fact to the state registrar, on a card provided for this purpose.

Sec. 20. That each local registrar shall be entitled to be paid the sum of twenty-five cents for each birth and each death certificate properly and completely made out and registered with him, and correctly copied and duly returned by him to the state registrar, as required by this act. And in case no births or deaths were registered during any month, the local registrar shall be entitled to be paid the sum of twenty-five cents for each report to that effect, promptly made in accordance with this act. All amounts payable to registrars under provisions of this section shall be paid by the treasurer of the county in which the registration districts are located, upon certification by the state registrar. And the state registrar shall annually certify to the treasurers of the several counties the number of births and deaths registered, with the names of the local registrars and the amounts due each at the rates fixed herein.

Sec. 21. That the state registrar shall, upon request, furnish any applicant a certified copy of the record of any birth or death registered under provisions of this act, for the making and certification of which he shall be entitled to a fee of fifty cents, to be paid by the

applicant. And any such copy of the record of a birth or death, when properly certified by the state registrar to be a true copy thereof, shall be prima facie evidence in all courts and places of the facts therein stated. For any search of the files and records when no certified copy is made, the state registrar shall be entitled to a fee of fifty cents for each hour or fractional hour of time of search, to be paid by the applicant. And the state registrar shall keep a true and correct account of all fees by him received under these provisions, and turn the same over to the state treasurer.

Sec. 22. That if any physician who was in medical attendance upon any deceased person at the time of death shall neglect or refuse to make out and deliver to the undertaker, sexton, or other person in charge of the interment, removal, or other disposition of the body, upon request, the medical certificate of the cause of death, hereinbefore provided for, he shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than five dollars nor more than fifty dollars. And if any physician shall knowingly make a false certification of the cause of death, in any case, he shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than fifty dollars nor more than two hundred dollars. And any physician or midwife in attendance upon a case of confinement, or any other person charged with responsibility for reporting births, in the order named in section 13 of this act, who shall neglect or refuse to file a proper certificate of birth with the local registrar, within the time required by this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than five dollars nor more than fifty dollars. And if any undertaker, sexton, or other person acting as undertaker, shall inter, remove, or otherwise dispose of the body of any deceased person, without having received a burial or removal permit as herein provided, he shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than twenty-five dollars nor more than one hundred dollars. And any registrar, deputy registrar, or subregistrar who shall neglect or fail to enforce the provisions of this act in his district, or shall neglect or refuse to perform any of the duties imposed upon him by this act, or by the instructions and directions of the state registrar, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than ten dollars nor more than one hundred dollars. And any person who shall wilfully alter any certificate of birth or death, or the copy of any certificate of birth or death, on file in the office of the local registrar, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than ten dollars nor more than one hundred dollars, or be imprisoned in the county jail not exceeding sixty days, or suffer both fine and imprisonment, in the discretion of the court. And any other person or persons who shall violate any of the provisions of this act, or who shall wilfully neglect or refuse to perform any duties imposed upon them by

the provisions of this act, or shall furnish false information to a physician, undertaker, midwife, or informant, for the purpose of making incorrect certification of births or deaths, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than five dollars nor more than one hundred dollars. And any transportation company or common carrier transporting or carrying, or accepting through its agents or employes for transportation or carriage, the body of any deceased person, without an accompanying permit issued in accordance with the provisions of this act, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than fifty dollars nor more than two hundred dollars; provided, that in case the death occurred outside of the state and the body is accompanied by a certificate of death, burial or removal, or transit permit issued in accordance with the law or board of health regulations in force when the death occurred, such death certificate, burial or removal or transit permit may be held to authorize the transportation or carriage of the body into or through the state.

Sec. 23. The local registrars are hereby charged with the strict and thorough enforcement of the provisions of this act in their districts, under the supervision and direction of the state registrar. And they shall make an immediate report to the state registrar of any violation of this law coming to their notice by observation or upon complaint of any person, or otherwise. The state registrar is hereby charged with the thorough and efficient execution of the provisions of this act in every part of the state, and with the supervisory power over local registrars, to the end that all the requirements shall be uniformly complied with. He shall have authority to investigate cases of irregularity or violation of law, personally or by accredited representative, and all registrars shall aid him, upon request, in such investigations. When he shall deem it necessary, he shall report cases of violation of any of the provisions of this act to the prosecuting attorney or official of the proper county or municipality, with a statement of the facts and circumstances; and when any such case is reported to them by the state registrar, all prosecuting attorneys or officials acting in such capacity shall forthwith initiate and promptly follow up the necessary court proceedings against the parties responsible for the alleged violations of law. And upon request of the state registrar, the attorney-general shall likewise assist in the enforcement of the provisions of this act.

Sec. 24. That all laws and parts of laws inconsistent with the provisions of this act are hereby repealed; and no system for the registration of births and deaths shall be continued or maintained in any of the several municipalities of this state other than one provided for and established by this act.

Senate Bill No. 334, 45th General Assembly.

An act to repeal section 7 of an act of the general assembly of this state, approved March 12, 1901, and entitled "An act to regulate the practice of medicine, surgery and midwifery, and to prohibit treating the sick and afflicted without a license, and to provide penalties for the violation thereof," as amended by act of general assembly of this state, approved April 4, 1907, and to enact a new section in lieu of said section 7 so repealed, providing for the revocation of the right to practice medicine in this state and procedure thereon.

Section 1. Repealing section 7, and enacting new section in lieu thereof.

Be it enacted by the general assembly of the State of Missouri, as follows:

Section 1. That section 7 of an act of the general assembly of this state (approved March 12, 1901) entitled: "An act to regulate the practice of medicine, surgery and midwifery, and to prohibit treating the sick and afflicted without a license, and to provide penalties for the violation thereof," as amended by act of the general assembly of this state, approved April 4, 1907, be and the same is hereby repealed and a new section to be numbered section 7 is hereby enacted in lieu of said section so repealed as follows, to-wit:

Section 7. The board may refuse license to individuals guilty of unprofessional or dishonorable conduct, and they may revoke licenses, or other right to practice, however derived, for like cause after giving the accused an opportunity to be heard in his defense before the board. Habitual drunkenness or excessive use of narcotics or producing criminal abortion shall be deemed unprofessional and dishonorable conduct within the meaning of this section, but this specification is not intended to exclude all other acts for which licenses may be revoked, but any person whose license has been or shall be revoked by the board shall have the right to have the proceedings of said board revoking his license reviewed, on a writ of certiorari by the circuit court of the county in which said board held its session when said license was revoked, or to the circuit court or to the clerk thereof in vacation, of the county in which the person whose license shall be revoked resides. Said writ shall issue, upon the petition of the person, whose license shall have been revoked, to said court or to the clerk thereof in vacation of court and shall command the said board, or the secretary thereof, to certify to said court the record and proceedings of said board in relation to the revocation of the license of the petitioner, or a complete transcript thereof pertaining to the revocation of said license. The petitioner for the writ of certiorari shall so set forth the rights of the petitioner, and the injuries complained of by him as to show that the petitioner is entitled to the writ and shall be verified by him. If the proceedings of the board shall be sustained or upheld by the circuit court, its order, decision or judgment revoking

said license shall remain and continue in full force and effect. Such license pending said review on certiorari shall stand revoked and so remain until the proceedings of the board relating thereto shall be quashed or otherwise annulled by the circuit court on said writ of certiorari.

House Bill No. 690, 45th General Assembly.

An act to amend an act entitled "An act to regulate the practice of medicine, surgery and midwifery, and to prohibit treating the sick and afflicted without a license and to provide penalties for the violation thereof" as found in session acts of 1901 at page 207 and approved March 12, 1901.

Be it enacted by the general assembly of the state of Missouri, as follows:

Section 1. That section 4 of an act entitled "An act to regulate the practice of medicine, surgery and midwifery and to prohibit treating the sick and afflicted without a license, and to provide penalties for the violation thereof" as found in session acts of 1901 at page 207, and approved March 12, 1901, be and the same is hereby amended by striking out the words "for twenty days" in the eleventh line of said section, and by striking out the word "after" in the twelfth line of said section and inserting in lieu thereof the word "before," so that said section when amended, shall read as follows:

Section 4. Every person holding a license from the state board of health shall have it recorded in the office of the county clerk of the county in which he resides, and the record shall be endorsed thereon. And the clerk is authorized to charge a fee of one dollar for recording each license, to be paid by the person offering such license for record. Any person removing to another county to practice medicine or surgery shall have his license recorded in the county which he moves to, and the holder of said license shall pay said clerk of said county the usual fee for making the record. The county clerk shall keep in a book provided for that purpose a complete list of the licenses recorded by him with the date of issue. Any person neglecting to record his license as in this section provided, before entering upon the practice, shall be guilty of a misdemeanor, and on conviction thereof shall be fined not less than fifty dollars, and on failure to record said license for thirty days after such conviction, such person shall be liable to a fine of not less than one hundred dollars.

**PHYSICIANS LICENSED IN MISSOURI ON RECIPROCITY,
SINCE JANUARY 1, 1909.**

Dr. C. E. Lovett.....Iowa	Dr. A. L. Cambre.....Iowa
Dr. Z. T. Knight.....Iowa	Dr. John C. Boone.....Kentucky
Dr. C. H. Bulkley.....Iowa	Dr. David F. Dumbauld.....Michigan
Dr. J. H. Wells.....Iowa	Dr. John W. Earel.....Nebraska
Dr. J. L. Rawhouser.....Iowa	Dr. J. W. Ousley.....Texas
Dr. Frank T. Stevens.....Iowa	

**PHYSICIANS WHO HAVE RECIPROCATED WITH OTHER
STATES SINCE JANUARY 1, 1909.**

Dr. W. F. Ament.....Indiana	Dr. I. P. Lamb.....Texas
Dr. S. I. Arthur.....Indiana	Dr. L. Herbert Lanier.....Texas
Dr. J. O. Hayhurst.....Indiana	Dr. Anna B. Bonebrake.....Texas
Dr. E. A. Waggoner.....Kentucky	Dr. Wm. F. Allen.....Texas
Dr. Egbert Crowson.....Nebraska	Dr. John H. O'Bar.....Texas
Dr. B. F. Slusher.....Nebraska	Dr. J. Howard Heacock.....Texas
Dr. Alen C. Brown.....Nebraska	Dr. Doke Gentle.....Texas
Dr. E. A. Montgomery.....Nebraska	Dr. Jas. M. Williams.....Texas
Dr. W. L. Fuller.....Nevada	Dr. A. E. Davis.....Texas
Dr. T. J. Drisdell.....Oklahoma	Dr. V. C. Staats.....Texas
Dr. T. B. Wingo.....Texas	Dr. H. H. Griffin.....Texas
Dr. Wm. L. Frazier.....Texas	

Below is a list of those who took the examination held in Kansas City on May 17-18-19, 1909, to practice medicine, surgery and mid-wifery:

Anderson, Isadore.	Hall, H. F.	Owensby, O. M.
Allen, Claude J.	Hess, H. L.	Perry, David C.
Billings, Alva E.	Hill, R. B.	Page, John M.
Bobbitt, A. N.	Hogan, Joe L.	Price, R. P., Jr.
Bradbury, A. D.	Harris, E. A.	Prather, R. W.
Beeching, C. L.	Irland, Robert D.	Pinto, W. A.
Brandt, Benjamin.	Johnson, Clifford P.	Rhodes Wm. L.
Brawley, Mark A.	James, Percy B.	Roy, James E.
Bremser, Wm. E.	Jackson, A.	Pinion, John R.
Brown, Jas. T.	Kerr, H. L.	Russell, Guy J.
Butt, Ernest G.	Kehoe, John J.	Rogers, J. R.
Chilcott, W. L.	Lane, Harry S.	Rooks, O. R.
Craddock, A. A.	Leonard, Homer O., Jr.	Rumsey, Fred C.
Cole, Benj. L.	Lewis, Jas. J.	Shaffer, Raymond C.
Coffey, Richard N.	Lindsay, F. A.	Smith, French M.
Carrington, Will J.	Lynch, Thomas J.	Sandy, Chas.
Davis, Brett	Long, Frank B.	Sanders, Clifford E.
Douglass, Jas. H.	McAdow, Jim W.	Thornton, Warren T.
Duckett, Claud E.	Morrison, J. H.	Traylor, Winn.
Fair, W. A.	Moran, Jas. M.	Totten, Frank C.
Farner, Jerry.	Morton, Harry Q.	Tibe, Matilda L.
Fletcher, J. H.	Nauman, O. W.	Williams, S. E.
Galtry, Chas. F.	Nigh, John W.	Witten, H. O.
Griffin, Wilton L.	Nutz, Jos. F.	Walker, S. G.
Harker, H. J.	Ozias, M. M.	Zeinert, O. B.
Hayward, J. W.	Osborne, Chas. D.	

Below is a list of those who took the examination held in St. Louis on June 7-8-9, 1909, to practice medicine, surgery and mid-wifery:

Arbuckle, M. F.	Hild, Reinhart L.	Quade, Omar H.
Abbott, Jas. W.	Habig, Louis P.	Qualls, Guy L.
Aubuchon, W. E.	Hall, R. G.	Robbins, J. W.
Burchart, S.	Hennerich, Otto A.	Risser, C. H.
Bradley, Frank T.	Hempel, Elizabeth R.	Reser, W. O.
Bassett, C. W.	Holmes, P. A.	Rothman, Clara P.
Barrow, Jas. W.	Hendricks, Harry H.	Ross, Mary S.
Blankenship, Elmer P.	Hunter, Thomas G.	Riley, Floyd B.
Brookes, T. P.	Henschel, Edward	Randall, Leslie.
Burgherr, Emil H.	Harvey, W. A.	Raemdouck, A. J.
Burst, E. A.	Hogan, R. E.	Schmid, Otto A.
Bellaire, R. F.	Jenkins, N. S.	Stone, A. R.
Barton, Wm. E.	Johnson, D. R.	Stanze, F. J.
Blackburn, Quinn.	King, W. R.	Schaller, F. T.
Cayo, Ernest P.	Kleinschmidt, Harry E.	Simmons, Chas. D.
Chrane, V. B.	Cluegel, Wm.	Shore, H.
Clark, I. Ross.	Kring, Elbert V.	Sewing, A. H.
Chapin, John E.	Knowles, J. T.	Stone, Edna Miller.
Collins, Frank.	Kenney, Clarence J.	Seabaugh, O. L.
Cox, Elmer L.	Lincoln, C. L., Jr.	Simpson, Guy
Castlen, Chas. R.	Landree, J. C.	Scheele, M. H.
Chilton, Frank N.	Leonard, F. S.	Suttle, O. A.
Culler, C. H.	Lane, J. W.	Seabold, J. A.
Commerford, Jas. J.	Marshall, Harley.	Seibert, D. A.
Couch, Leo B.	McAuliffe, Percy J.	Schnieder, F. C. I.
Clarenbach, Wm. S.	McGinnis, C. S.	Statler, J. L.
Coffin, E. L.	Myers, Eugene L.	Steinmetz, J. B.
Davis, W. D.	Moore, Chas.	Tuttle, F. W.
Derfler, M. E.	McNulty, J. B.	Tuholske, L. H.
Denny, Leonard H.	Margulis, A. A.	Theodoroff, C.
Dillon, Frank H.	Macklin, L. P.	Taylor, Thomas W.
Durnell, Aubert	Miller, Geo. C.	Thaler, Wm. H.
Dallas, L. W.	Mehrle, Martin.	Torrance, L. B.
Dill, R. D.	Mathae, Geo. H.	Thomas, C. S.
Emmons, F. H.	Miller, Glenn W.	Toney, Lee E.
Evans, C. M.	McKinney, J. J.	Tiernon, Luke B.
Fish, Drury L.	Nugent, J. T.	Waters, H. B.
Finlay, Robert C.	Napier, Amalie M.	Weintraub, S. A.
Fleege, F. H.	O'Connell, John H.	Workman, Howard.
Finkelstein, Ignaz H.	Pugh, W. N.	Wilucki, L. E.
Fairchild, Statella F.	Powers, Jos. V.	Wedel, L. E.
Freeman, S. F.	Press, M. J.	Wippo, E. W.
Gibbs, Harry W.	Pfeffer, Peter A.	Walter, D. J.
Gunn, Fred H.	Pippert, N. J.	Weir, W. F.
Gallemon, Guilford B.	Poynter, Wm.	Weiss, Richard S.
Holland, W. W.	Parrish, B. B.	Williams, J. H.
Howell, John F. O.	Paullus, G. E.	Waters, C. E.
Horst, Otto C.	Posnansky, M. M.	Young, L. P.
	Pruett, J. W.	Young, Lillian V.

The grades made by those who took these examinations will be passed upon July 19, 1909, and certificates awarded to those who make an average grade of 75 per cent or above.

The next examination held by the Board of Health will be conducted in Kansas City, Mo., on September 20-21-22, 1909, beginning at 9 a. m. each day; midwives will be examined September 22, 1909, beginning at 9 a. m.

Below is a list of health officers throughout the state with post-office address in so far as has been reported to this office.

County.	Health Officer.	Postoffice.
Andrew.	Dr. W. H. Bailey.	Savannah, Mo.
Audrain.	Dr. Robert W. Berry.	Mexico, Mo.
Barry.	Dr. S. A. Newman.	Cassville, Mo.
Bates.	Dr. T. C. Boulware.	Butler, Mo.
Benton.	Dr. E. E. Holtzen.	Cole Camp, Mo.
Bollinger.	Dr. C. A. Sander.	Marble Hill, Mo.
Boone.	Dr. J. E. Thornton.	Columbia, Mo.
Buchanan.	Dr. John M. Doyle.	St. Joseph, Mo.
Butler.	Dr. A. R. Rowe.	Poplar Bluff
Caldwell.	Dr. J. E. Gartside.	Kingston
Callaway.	Dr. G. D. McCall.	Fulton
Camden.	Dr. S. Mills.	Macks Creek
Cape Girardeau.	Dr. G. W. Vinyard.	Jackson
Carroll.	Dr. R. F. Cook.	Carrollton
Carter.	Dr. T. W. Cotton.	Van Buren
Cass.	Dr. J. S. Triplett.	Harrisonville
Cedar.	Dr. Frank A. Brown.	Stockton
Clark.	Dr. W. H. Martin.	Kahoka
Clay.	Dr. F. H. Matthews.	Liberty
Clinton.	Dr. J. R. Hamer.	Cameron
Cole.	Dr. J. L. Thorpe, Jefferson City, Co. Phys. Dr. J. E. Loop, Jefferson City, City Phys.	
Dallas.	Dr. B. F. Johnson.	Buffalo
Daviess.	Dr. W. L. Brosius.	Gallatin
DeKalb.	Dr. H. P. Yeater.	Marysville
Dent.	Dr. W. E. Rudd.	Salem
Douglas.	Dr. J. L. Gentry.	Ava
Dunklin.	Dr. A. S. Harris.	Kennett
Franklin.	Dr. A. C. Brown.	Moselle
Gasconade.	Dr. H. A. Well.	Hermann
Gentry.	Dr. J. N. Barger.	Darlington
Grundy.	Dr. S. Sheldon.	Trenton
Harrison.	Dr. A. H. Vandivert.	Bethany
Henry.	Dr. W. H. Gibbins.	Clinton
Hickory.	Dr. H. C. Brookshire.	Hermitage
Howard.	Dr. Champion.	Hildale
Iron.	Dr. G. W. Farrer, Sr.	Ironton

County.	Health Officer.	Postoffice.
Jackson.	Dr. J. W. Greene.	Independence
Jasper.	Dr. W. J. Willim, W. Dist.	Joplin
	Dr. Leroy, Central Dist.	Cartersville
	Dr. H. E. Baker, E. Dist.	Carthage
Jefferson.	Dr. Frank S. Luckey.	Festus
Johnson.	Dr. A. J. Berry.	Warrensburg
Laclede.	Dr. J. M. Billings.	Lebanon
Lafayette.	Dr. F. W. Mann.	Wellington
Lawrence.	Dr. Jos. M. Painter.	Mt. Vernon
Lewis.	Dr. Roy E. Wilson.	LaBelle
Lincoln.	Dr. E. A. Kirks.	Troy
Linn.	Dr. W. F. Burke.	Laclede
Livingston.	Dr. David Gordon.	Chillicothe
Macon.	Dr. C. W. Reagan.	Macon
Madison.	Dr. S. C. Slaughter.	Fredericktown
Maries.	Dr. J. E. Jose.	Vienna
Marion.	Dr. T. A. Roselle.	Palmyra
Mercer.	Dr. G. M. Bristow.	Princeton
Miller.	Dr. Walter D. Dickson.	Tuscumbia
Mississippi.	Dr. H. L. Reid.	Charleston
Moniteau.	Dr. J. W. Marsh.	Tipton
Monroe.	Dr. F. M. Moss.	Paris
Montgomery.	Dr. Ira A. Miller.	Middletown
Morgan.	Dr. R. O. Kelly.	Versailles
New Madrid.	Dr. C. W. Watson.	New Madrid
Newton.	Dr. E. M. Roseberry.	Neosho
Oregon.	Dr. W. M. Wallis, Jr.	Maryville
Osage.	Dr. A. H. Rickhoff.	Chamois
Ozark.	Dr. T. J. White.	Gainesville
Pemiscot.	Dr. Henry T. Byars.	Caruthersville
Perry.	Dr. J. P. Clark.	Perryville
Pettis.	Dr. W. J. Ferguson.	Sedalia
Phelps.	Dr. C. H. Fullbright.	St. James
Platte.	Dr. H. M. Clark.	Platte City
Polk.	Dr. W. S. Hopkins.	Bolivar
Pulaski.	Dr. I. Tice.	Waynesville
Putnam.	Dr. Lee Haynes.	Mendota
Ray.	Dr. C. C. Crowley.	Richmond
Reynolds.	Dr. T. T. O'Dell.	Ellington
St. Charles.	Dr. Carl Bitter.	St. Charles
St. Clair.	Dr. Dudley B. Williams.	Osceola
St. Francois.	Dr. G. B. Perkins.	Elvins
Ste. Genevieve.	Dr. F. E. Hinch.	Ste. Genevieve
St. Louis.	Dr. G. C. Eggers.	Clayton
Saline.	Dr. G. S. Hardin.	Marshall
Schuyler.	Dr. E. L. Mitchell.	Lancaster

County.	Health Officer.	Postoffice.
Scotland.	Dr. A. E. Platter.	Memphis
Shannon.	Dr. Frank Hyde.	Eminence
Shelby.	Dr. H. P. Willis.	Shelbina
Stoddard.	Dr. Eldon Phillips.	Bloomfield
Sullivan.	Dr. J. S. Montgomery.	Milan
Warren.	Dr. E. H. Brandt.	Warrenton
Washington.	Dr. James D. Hall.	Potosi
Worth.	Dr. John Andrews.	Grant City
Wright.	Dr. B. E. Lattimer.	Hartville

Dr. Ernest F. Robinson of Kansas City, Mo., was recently appointed on the State Board of Health by Gov. Hadley to succeed Dr. W. S. Thompson of Armstrong, Mo., and Dr. Frank B. Hiller of Kahoka, Mo., was appointed to succeed Dr. Robert H. Goodier of Hannibal, Mo.

REPORT OF THE BACTERIOLOGIST.

July 1, 1909.

Sputum containing tubercle bacilli.	34
Sputum free from tubercle bacilli.	119
For diphtheria, Klebs-Loeffler bacillus present.	3
For diphtheria, Klebs-Loeffler bacillus absent.	7
Blood, Widal reaction positive.	4
Blood, Widal reaction negative.	9
Water.	2

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GUTHRIE McCONNELL, M. D.

4175 Washington Ave., St. Louis, Mo.

THE STATE LABORATORY AS A SAFEGUARD TO THE PUBLIC HEALTH.

Guthrie McConnell, M. D.,

(Bacteriologist to the Missouri State Board of Health.)

Until comparatively recent years the field of medicine had not reached the point where it was impossible on account of its magnitude for one man to thoroughly know the subject. Physicians in the past were not only well acquainted with their profession but they were well versed in many of the allied subjects, as zoology, botany, chemistry, etc. This condition has, however, greatly changed as a result

of the never ceasing work of investigation that is going on the world over.

As the extent of medical information increased it became necessary for the physician to direct his efforts along a narrower field and to omit to a large degree the collateral branches. The science of medicine continued to grow until one man could no longer deal authoritatively with all its manifestations. Consequently the era of specialists came, men devoting their time to one or several branches of the art, principally as surgeons or internists. Finally these were again split up into numerous subdivisions, as oculists, dermatologists and a dozen others.

Up to this time the laboratory worker had been a clinician who incidentally did what he could along the line of research, but the men who devoted their time to this subject could be easily counted. As pathology, physiology and chemistry revealed new fields, in consequence of the aggregate studies throughout the world, a new class of men took an important position. They were those who devoted their entire time to research work. It being soon discovered that one individual could not be an active clinician and at the same time devote his attentions to his laboratory, research being a jealous mistress.

The general practitioners who graduated twenty years or more ago did not have laboratory facilities in those days, for the simple reason that there was little work of that sort in existence. The successful physician was the one who by his large clinical experience and accurate observation was best able to make correct diagnoses and to successfully treat his patients. The clinical thermometer in the earlier days was unknown and the severity of the fever had to be estimated from the sensations given to the investigating hand.

As time went on various laboratory methods were passed on to the clinician. The schools increased their facilities for training as the knowledge of such procedures became more and more extensive. This meant that clinical instruction was being broadened by the introduction of new methods, not so much to supplant the older style of teaching as to aid it.

(Read before the State Medical Society of Missouri May 18, 1909.)

For a long time this new idol was bowed down to by the majority and many sins were committed in its name. The older men who had acquired their skill from long association with the sick saw themselves being thrust down by the recent graduate who thought that, because he had seen tubercle bacilli through a microscope, he was a true scientist. In many instances the new comer was, however, able to prove his superiority along definite paths and clinical experience was relegated to the background in the face of modern laboratory methods. The man with the laboratory training reigned supreme for some time but he was found to be not omniscient. He would send out reports from his laboratory and in the course of time they would

be proved to be incorrect. It was not the result of deficiencies in the methods but in the men who had not had the experience required in order that proper deductions and correct conclusions could be drawn.

As conditions now are, there is a much saner and safer balance between the clinician and the laboratory worker. The latter is no longer so sure of his findings and the former is now better able to properly value the reports given him. The necessity is now appreciated of the great importance of correlating the clinical manifestations with the results of the laboratory investigations. The man working with the test tube and the microscope has realized the value of having on review as many clinical data as possible. He no longer gives an off hand report, feeling that nothing further can be said on the subject. If he is wise he will recognize times when his proper course will be to say that he does not know, he will no longer make diagnoses and outline treatment after making a laboratory examination. It is this tendency toward making a diagnosis that has led, to some extent, to a feeling of mistrust being manifested by the clinician. The fault, however, does not lie entirely with the laboratory worker. He is frequently given a specimen for examination and expected to report upon it without having the advantage of any clinical findings. When they are asked for he is not infrequently rebuffed and told that the specimen was sent for him to diagnose. In consequence men have greatly exceeded their duties and have attempted to diagnose the case and even to prescribe a method of treatment. Such a course is often very foolish and one liable to cause trouble. The laboratory man should realize that the most he should do is to make a plain statement of facts. He should say that the tissue is carcinomatous, that the urine contains sugar, that the hemaglobin is diminished. He should not say that an operation in the first instance is the only treatment, that the patient has diabetes because sugar is present in the urine, or that the individual is suffering from a secondary anemia. He might be right in each case but again he might be wrong on all three counts.

It is the duty of the practising physician on the other hand to so train himself that he can put the proper interpretation upon the findings of the laboratory. If the case proves to be cancer then let him follow out the course of treatment that is proper for his patient, if the clinical symptoms point to diabetes then the finding of sugar in the urine will determine the diagnosis.

It is here that the clinician and the laboratory expert should come in closer relationship. If the man of science is also one who has had a large clinical experience he will be able to gather much information by either seeing the patient or by talking over the case with the attending physician. At the same time the physician acquires a better understanding of the limitations of the laboratory. Although neither one can become equally expert in both branches yet they both can appreciate the value of the work done by the other. From a practical stand-

point the busy practitioner can gain more by the employment of laboratory methods than can the research worker by giving time to clinical investigations, although a large part of experimental medicine is based upon the study of diseased patients.

The point that seems the most important at present is the stimulation of a proper use of laboratory methods by those who have not had the training necessary or who, on account of active practice, have not the time to employ methods well known to them. The up-to-date physician finds that there are many ways in which the laboratory can assist him. To enumerate all of them would take pages, yet there are some that possibly stand foremost, particularly in regard to the health of the community. Given a case of continued fever the question arises as to whether or not it is typhoid. A drop of blood sent to the laboratory may be the means of determining the diagnosis. The examination of an exudate from the throat may frequently be the cause of preventing an epidemic of diphtheria. The finding of tubercle bacilli in the sputum enables the physician to take the proper precautions toward the protection of other members of the household as well as the community at large. In addition to these may be mentioned the examination of blood for the malarial organism, of urine for sugar or albumen. The presence of intestinal parasites, of bacteria in various lesions, may be disclosed by laboratory methods and the proper diagnosis made. Examinations of gastric contents, of specimens of milk and of water, all of these can be done with comparative ease in the laboratory. The determination of the nature of a tumor will frequently decide the course of treatment, whether or not the patient shall be subjected to an extensive operation. In all these methods there must, however, be one point emphasized greatly and that is that they are of main value only when positive in character. Not finding tubercle bacilli in a single specimen of sputum does not necessarily indicate a lack of infection. The patient may not have sent proper material or it may not have been obtained under suitable conditions. The absence of the malarial plasmodium may mean that the blood was not procured at the best time. A physician would not be justified in saying that a sore on the genitalia was not a chancre on account of his inability to find the *Treponema pallidum*. The lack of agglutination of a culture of typhoid bacilli by the serum from a patient would not be sufficient to throw out the diagnosis of typhoid fever.

The clinician in the absence of positive laboratory findings should have the courage to make his diagnosis from what he can observe at the bedside. The negative laboratory report should frequently be considered in the light of the lack of a symptom. On the other hand a positive result will frequently be sufficient to overthrow all of the clinical signs. The examination of the blood may show conclusively that the case is one of malaria and not typhoid, a tumor thought benign may prove malignant and so on.

Although the value of laboratory examinations may be thor-

oughly appreciated yet there may be, and frequently are, very satisfactory reasons for not employing them. In the first place there is the necessity of having proper laboratory equipment. Such an outfit, even in its simplest form, is expensive and not many men, excepting in the larger cities, have a practice that justifies the expenditure. In addition to the laboratory it is essential that there shall be someone in charge who has had an adequate training. The usual practitioner has not had the proper instruction and consequently when he does make some examination he does not feel sufficiently sure of himself to put much reliance upon his results.

In many small communities there is some man, usually a comparatively recent graduate, who, while waiting for his practice to increase, devotes his time to making examinations for his fellow physicians. As his patients increase in number his laboratory work is necessarily neglected, and the physicians, and the community as well, suffer unless some other man has appeared to carry on the work. Such a method, although better than none, is not very satisfactory. As a result of these interruptions there have been formed in various cities large private laboratories where the desired examinations can be undertaken. A great drawback to this is the expense. The work requires special training and special apparatus and consequently prices that may seem high have to be charged. This however means that a very large portion of a physician's practice has to get along as well as possible without having the latest methods of science employed in its behalf. This does not seem right either to the individual in question nor to the community. That the public should be exposed to an epidemic of typhoid fever or of diphtheria because a patient is unable to pay for a Widal test or for an examination of a culture from a throat is absurd. Such matters should be attended to by the larger aggregations of citizens.

The first to recognize this responsibility to the community were the larger cities. It was soon realized that it was much cheaper to spend money to keep the citizens well than to attempt to cure them after they become sick. One epidemic of typhoid, or diphtheria or particularly small-pox, would cause a loss to the city of an amount much greater than would be required to conduct an efficient health department. In consequence, one of the early acts of the health boards was the establishment of city laboratories where investigations of conditions bearing upon the city's health could be conducted. The physicians were urged to have examinations made of sputum from suspected tuberculous patients, of cultures from inflamed throats or of blood when typhoid fever was suspected. In this way a careful watch could be kept over the people's health and proper methods be employed to safeguard the community. The expense of such an institution being borne by the city from money obtained by taxation, such an employment of the city's funds being fully warranted by the saving that it brought about, not only of money but of lives.

Such a method as the above can be satisfactorily maintained in the large and concentrated settlements but a much more difficult matter it becomes when the sparsely settled areas are taken into consideration. They do not have the money to expend in paying a sufficient sum to equip a laboratory and to pay a man to take charge, yet their lives are just as valuable to the state as the lives of those who live in cities.

In a number of states this matter has been solved to a large extent by the establishment of county laboratories. Such, however, seem to occupy a position between the free laboratory of the city and those conducted by private individuals. The county supplies what money it can and the patients pay what they are able for the examination undertaken. This plan works well in a county that contains many people, amongst whom are physicians who not only themselves recognize the value of such methods but who are willing to work for the advancement of medical science. If however the county is not thickly inhabited nor contains a leaven of intelligent physicians, such a laboratory becomes an impossibility. There is then nothing for the physician to do but either to send his specimens to a private laboratory or to neglect that important side of his profession. He cannot send his specimens to a city laboratory as the opportunities there are of necessity restricted to its own inhabitants. They are the ones paying the taxes and consequently those who reap the advantages. If there is no county laboratory the physician is then helpless unless the state comes to his aid.

A number of the states have appreciated the importance of this and their various legislatures have appropriated the money necessary to build and equip a laboratory and to pay the salaries required to obtain competent men. In these states the country practitioner is enabled to carry on his work to the best advantage to his patients, to himself and to the community. When in doubt concerning some case he can bring to his aid the advantages that are placed at his disposal. All that is required is that he shall send the material to the laboratory in such a condition that it can be examined to the greatest advantage. The greater the use made of laboratories the greater will be the realization by the medical profession of the value of such examinations. The more familiar the physician becomes with laboratory findings the better able will he be to properly interpret and apply the knowledge so obtained. In due time he will wonder how he ever got along without employing such assistance and he will find that a desire for accurate diagnosis will soon arise. The doctor will no longer be willing to wait till his patient dies or recovers before deciding whether or not a given tumor was malignant. Cases of "typhoid-malaria" will disappear and the patient will be found to be suffering from either typhoid or malaria, according as to whether the Widal reaction is positive or the plasmodium is found in the blood.

The control of the infectious diseases, such as tuberculosis, diph-

theria, typhoid fever and small-pox, is by no means a matter of sentiment, it is one of great economic importance. It is being more and more widely recognized that sickness is a source of great monetary loss to the public as well as to the individual, not to mention the suffering that it may inflict upon those dependent upon the sick person. When one takes into consideration the value of the lives lost each year by preventable diseases, and tuberculosis, diphtheria and typhoid fever certainly belong to that class, it can be readily seen that a trifle of that amount if expended for better control of the state health would result in a tremendous saving. Various courts have placed an average value of five thousand dollars on a person's life and when one multiplies the number of deaths from the above three diseases the figures obtained are appalling. In 1900 there were in Missouri 3,459 deaths from consumption, 1,682 from typhoid fever and 1,075 from diphtheria, all due to conditions that need not exist.

In a paper read by Professor Wm. T. Sedgewick some months ago he shows that Mr. Allen Hazen's theorem that for every death from typhoid fever avoided by the purification of a polluted water supply, two or three deaths from other causes are avoided, is not only possible but probably conservative. A hundred deaths from typhoid fever in a year would be a loss to the community of a half million dollars. Then, according to Hazen's theorem, two or three hundred deaths from other causes attributable to the conditions that also bring about typhoid fever might have been avoided. Consequently it is a much wiser plan to prevent people becoming sick than it is to cure them afterwards, even if that were always possible.

It would seem therefore that there should be no hesitation on the part of a state to furnish a proper laboratory. One that is large enough and sufficiently well equipped to allow, not only that the routine duties should be carried out to the best advantage, but to permit, as well, the undertaking of investigative work. The great advancement of medical knowledge is largely the result of experimental work carried on in the laboratories. Before new methods can be employed by the profession at large, they must be shown to be of value but at the same time harmless to the individual. Much of the information has to be acquired from the clinician before the laboratory results can be verified. Consequently the closer the relation between the two classes of workers the better will it be for the science of medicine.

A state laboratory should therefore be a center for the acquiring and dissemination of medical knowledge. From it should come an inspiration for the rest of the state. The men employed should be those of enthusiasm capable of carrying on the work to the greatest good of all concerned. In order that this might be accomplished it would be best that the laboratory be established in a locality that is an active medical center, so that its work can be seen and felt by those directly concerned in the teaching of medicine. The constant contact

with other men doing similar work provides a stimulus that is unequaled by anything else. The spirit of rivalry and emulation, when not carried to an excess, has done more for the advance of science than any other factor.

Another important reason for having such a laboratory in a large medical center is that it is at such a place that many students of medicine come to take post-graduate work, to examine into the methods of teaching, or to view the work of other men. Each one of these visitors is an unknown factor in the spreading of information in his own community. He goes to the state laboratory, meets active workers, learns new methods or obtains the relative value of old ones. The greater the number of such missionaries the greater the progress of medicine in the state. As the advance of medical knowledge means an increase in the health and wealth of the community any reasonable method to bring about that end is certainly justifiable. Of such methods there seems to be none so valuable or so needed as a well equipped state laboratory, well equipped not only in apparatus but in men.

